

## APPENDIX C: VALUATION REFERENCES

### C-1 RULES OF ROUNDING

#### A. PRECISION IN ROUNDING

Precision in calculating value estimates is critical to obtaining consistent valuations. Because the final estimate is a result of several calculations, the degree of precision used in the calculations could alter the final value. Therefore, it is important to remain consistent throughout the calculations. Also, consistency in rounding across appraisals is important for HUD to remain fair in determining insurance eligibility. Each value that HUD considers must be the result of the same rounding process so that values are not altered.

#### B. RULES OF ROUNDING

Numbers are rounded to the least precise number used in calculations. For example,  $\$55,156 \times 3.2 = \$176,499$ , is rounded to \$180,000 because the least precise number contained two digits (3.2). The number, \$176,499, was rounded by counting two places to the right of the beginning of the number.

Significant digits determine the precision of the numbers used in calculations. Significant numbers determine precision because precision is the closeness of the measurement, not the degree of accuracy. The following rules define significant numbers:

Rules of Rounding	Examples
All nonzero digits are counted.	345 has three significant digits.
Zeros that precede the first nonzero digit are not counted.	002 has one significant digit and .0001 has one significant digit.
Zeros surrounded by nonzero digits are counted.	30005 has five significant digits.
Zeros that follow the last nonzero digit are sometimes counted.	32.0 contains three significant digits because the zero is holding a place and could only serve that function. However, 300 may have one or three significant digits. Note that 300 has three significant digits because the decimal holds the precision to the decimal place.
All zeros at the end of a number are ignored when counting significant digits.	139,000 has three significant digits counting from left to right and ignoring all trailing zeros. Trailing zeros after a decimal are considered significant because it is assumed that a person placed the trailing zeros after a number to define the degree of precision.

**C. RULES OF ROUNDING EXAMPLE**

The series of calculations used when deriving the adjusted base cost and value under the cost approach demonstrate where the rules of rounding would apply.

	<b><u>Not applying rules</u></b>	<b><u>Rules of Rounding</u></b>
Square footage single family home	1,800	1,800
Good quality Class D	\$68.87	68.87
No air conditioning	(2.02)	-2.02
	<hr/> \$66.85	<hr/> 66.85
Height Adjustment for 10 ft.	1.06	1.06
Floor area/shape multiplier	0.982	0.982
	<hr/> 1.041	<hr/> 1.04
Adjusted Base Cost	<hr/> 69.59	<hr/> 69.52
Current Cost Multiplier	1.01	1.01
	<hr/> 70.28	<hr/> 70.22
Local Area Multiplier	1.21	1.21
	<hr/> 85.04	<hr/> 84.966
	<hr/> \$153,073	<hr/> \$153,000
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